

Arthur Irah
Anderson Dirk

PGPUB-DOCUMENT-NUMBER: 20030082783

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030082783 A1

TITLE: Dendritic cell transmembrane serine protease

PUBLICATION-DATE: May 1, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	
COUNTRY RULE-47			
Anderson, Dirk M.	Seattle	WA	US
Virca, G. Duke	Bellevue	WA	US

US-CL-CURRENT: 435/226, 435/320.1 , 435/325 , 435/6 , 435/69.1 ,
536/23.2

ABSTRACT:

Isolated Dendritic Cell Transmembrane Serine Proteases, DNAs encoding such serine proteases, and pharmaceutical and/or diagnostic compositions made therefrom, are disclosed. The isolated serine proteases can be used to hydrolyze peptide bonds. The serine proteases are also useful in screening for inhibitors or agonists thereof.

CLAIMS:

We claim:

1. An isolated nucleic acid selected from the group consisting of: (a) a nucleic acid comprising nucleotides 1 through 1431 of SEQ ID NO:1; (b) a nucleic acid comprising nucleotides 1 through 1338 of SEQ ID NO:3; (c) a nucleic acid encoding a DCTSP polypeptide comprising amino acids x to y of SEQ ID NO:2, wherein x represents an integer from 1 to 60, inclusive, and y represents an integer from 470 to 477, inclusive; (d) a nucleic acid encoding a DCTSP polypeptide comprising amino acids x to y of SEQ ID NO:2, wherein x represents an integer from 1 to 60, inclusive, and y represents an integer from 75 to 95, inclusive; (e) a nucleic acid encoding a DCTSP polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 1 to 60 inclusive, and y represents an integer from 441 to 446, inclusive; (f) a nucleic acid encoding polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 91 to 96, inclusive, and y

represents an integer from 441 to 446, inclusive; (g) a nucleic acid encoding a DCTSP polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 174 to 179, inclusive, and y represents an integer from 441 to 446, inclusive; (h) a nucleic acid encoding a DCTSP polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 174 to 179, inclusive, and y represents an integer from 190 to 195, inclusive; and (i) a nucleic acid encoding a DCTSP polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 91 to 96, inclusive, and y represents an integer from 190 to 195, inclusive.

2. The isolated nucleic acid of claim 1, selected from the group consisting of: (a) a nucleic acid comprising nucleotides 139 to 1410 of SEQ ID NO:1, inclusive; (b) a nucleic acid comprising nucleotides 139 to 225 of SEQ ID NO:1, inclusive; (c) a nucleic acid comprising nucleotides 139 to 1323 of SEQ ID NO:3, inclusive; (d) a nucleic acid comprising nucleotides 286 to 1323 of SEQ ID NO:3, inclusive; (e) a nucleic acid comprising nucleotides 535 to 1323 of SEQ ID NO:3, inclusive; (f) a nucleic acid comprising nucleotides 286 to 570 of SEQ ID NO:3, inclusive; (g) a nucleic acid comprising at least 17 consecutive nucleotides of SEQ ID NO:1, between nucleotides 1 and 190, inclusive; (h) a nucleic acid comprising at least 17 consecutive nucleotides of SEQ ID NO:3, between nucleotides 525 and 545, inclusive; (i) a nucleic acid comprising nucleotides 535 to 570 of SEQ ID NO:3, inclusive; and (j) DNA or RNA complements of the nucleic acids of (a) through (i).

3. The isolated nucleic acid of claim 1, which further comprises a nucleic acid encoding a polypeptide selected from the group consisting of an immunoglobulin Fc domain, an immunoglobulin Fc mutein, a FLAG.RTM. tag, a peptide comprising at least about 6 His residues, a leucine zipper, and combinations thereof.

4. A recombinant expression vector comprising the nucleic acid of claim 1.

5. A recombinant expression vector comprising the nucleic acid of claim 3.

6. A host cell transformed or transfected with the expression vector of claim 4.

7. A host cell transformed or transfected with the expression vector of claim 5.

8. The host cell of claim 6, wherein the nucleic acid encoding the DCTSP polypeptide is integrated into the host cell chromosomal DNA.

9. The host cell of claim 7, wherein the nucleic acid encoding the DCTSP polypeptide is integrated into the host cell chromosomal DNA.

10. A process for preparing a DCTSP polypeptide, comprising culturing the host cell of claim 8 under conditions promoting expression and recovering the DCTSP.

11. A process for preparing a DCTSP polypeptide, comprising culturing the host cell of claim 9 under conditions promoting expression and recovering the DCTSP.

12. A DCTSP polypeptide selected from the group consisting of: (a) a polypeptide comprising amino acids 1 through 477 of SEQ ID NO:2; (b) a polypeptide comprising amino acids 1 through 446 of SEQ ID NO:4; (c) a polypeptide comprising amino acids x to y of SEQ ID NO:2, wherein x represents an integer from 1 to 60, inclusive, and y represents an integer from 470 to 477, inclusive; (d) a polypeptide comprising amino acids x to y of SEQ ID NO:2, wherein x represents an integer from 91 to 96, inclusive, and y represents an integer from 470 to 477, inclusive; (e) a polypeptide comprising amino acids x to y of SEQ ID NO:2, wherein x represents an integer from 91 to 96, inclusive, and y represents an integer from 221 to 226, inclusive; (f) a polypeptide comprising amino acids x to y of SEQ ID NO:2, wherein x represents an integer from 1 to 60, inclusive, and y represents an integer from 75 to 95, inclusive; (g) a polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 1 to 60 inclusive, and y represents an integer from 441 to 446, inclusive; (h) polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 91 to 96, inclusive, and y represents an integer from 441 to 446, inclusive; (i) a polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 174 to 179, inclusive, and y represents an integer from 441 to 446, inclusive; and (j) a polypeptide comprising amino acids x to y of SEQ ID NO:4, wherein x represents an integer from 91 to 96, inclusive, and y represents an integer from 190 to 195, inclusive.

13. The DCTSP polypeptide of claim 12, which further comprises a peptide selected from the group consisting of an immunoglobulin Fc domain, an immunoglobulin Fc mutein, a FLAG.RTM. tag, a peptide comprising at least about

6 His residues, a leucine zipper, and combinations thereof.

14. An antibody immunoreactive with the DCTSP polypeptide of claim 12.

15. The antibody of claim 14, which is a monoclonal antibody.

16. A method for identifying compounds that alter DCTSP protease activity

comprising (a) mixing a test compound with the DCTSP polypeptide of claim 12

and (b) determining whether the test compound alters DCTSP protease activity.

17. The method of claim 16 wherein the compounds inhibit DCTSP protease activity.

18. The method of claim 16 wherein the DCTSP polypeptide further comprises a

peptide selected from the group consisting of an immunoglobulin Fc domain, an

immunoglobulin Fc mutein, a FLAG.RTM. tag, a peptide comprising at least about

6 His residues, a leucine zipper, and combinations thereof.

19. The method of claim 18 wherein the compounds inhibit DCTSP protease activity.

PUB-NO: WO003031578A2
DOCUMENT-IDENTIFIER: WO 3031578 A2
TITLE: MAMMALIAN C-TYPE LECTINS
PUBN-DATE: April 17, 2003

INVENTOR-INFORMATION:

NAME	COUNTRY
BUTZ, ERIC A	US
ANDERSON, DIRK M	US

INT-CL (IPC): C12N00/

ABSTRACT:

CHG DATE=20030603 STATUS=N>The present invention provides novel mammalian C-type lectin polypeptides associated with antigen presenting cells. Designated as Dendritic Cell C-type Lectins (DCL), the following four novel genes have been discovered: DCL 1, DCL 2, DCL 3 and DCL 4, as well as splice variants svDCL 2, svDCL 3 and svDCL 4, and a human homologue herein designated DCL 5. The present invention provides polynucleotides encoding DCL polypeptides, recombinant expression vectors, host cells transfected with the recombinant expression vectors, methods of producing and isolating the inventive polypeptides and various screening assays. Therapeutic compositions and methods of treating various diseases are also provided.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
17 April 2003 (17.04.2003)

PCT

(10) International Publication Number
WO 03/031578 A2

(51) International Patent Classification⁷: **C12N**

[US/US]; 1222 NE 105th Place, Seattle, WA 98125 (US).
ANDERSON, Dirk, M. [US/US]; 3616 NW 64th Street,
Seattle, WA 98107 (US).

(21) International Application Number: PCT/US02/31996

(22) International Filing Date: 4 October 2002 (04.10.2002)

(74) Agent: **KLANIECKI, James, E.**; Law Department, 51
University Street, Seattle, WA 98101 (US).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/328,026 9 October 2001 (09.10.2001) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG,
SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): **IM-
MUNEX CORPORATION** [US/US]; Law Department,
51 University Street, Seattle, WA 98101 (US).

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **BUTZ, Eric, A.**

[Continued on next page]

(54) Title: MAMMALIAN C-TYPE LECTINS

DCL 1.

ATGGCATTACCAAAACATTATCTACTGACCTGAAGCTTCAAAAATCAACCTGTTTCCTCAGGC
M A L P N I Y T D V N F K N Q P V S S G
CTCATCTCAGACTCGTCTTCACTGTACCGTCTCAGACTCGTCTTCAAGCTCTCCCAAGAAG
L I S D S S S C T V S D S S S A L P K K
ACCACTATTACAAAAGTAACCTGGCTTTCCAGGCTGCTTCTTGCCTTGTGGATATT
T T I H K S N P G F P R L L L A L W I F
TTCTGCTGTGGCAATCTTATCTCTGTGCTGATCATTTTATTTCAAATGTATTCT
F L L L A I L F S V A L I I L F Q M Y S
GATCTCTTGAAGAAAATATACTCTAGAACGACTGAATCAGCGAAGATTGCATTGTGTA
D L L E E K Y T L E R L N H A R L H C V
AAAAACCACTCGTCTGTAGAAGACAAAGTCTGGAGCTGTTTGTCCAAAGAATTGGAAGCCA
K N H S S V E D K V W S C C P K N W K P
TTTGATTCCTCACTGCTACTTCACTTCCCGTGACACTGCATCTGGAGTAAGAGTGAAGAG
F D S H C Y F T S R D T A S W S K S E
AAGTGTCTCCCTCAGGGGTGCTCATCTGCTGGTGATCCAGAGCCAGGAAGAGCAGGATTT
K C S L R G A H L L V I Q S Q E E Q D F
ATCACAACACTCTGAACCTCGTCTGCTTATTATGTGGGGCTGTGATGATCCAAAGGGC
I T N T L N P R A A Y Y V G L S D P K G
CATGGACAATGGCAGTGGGTGATCAGACACCATATGATCAAAATGCCACATCTGGCAC
H G Q W Q W V D Q T P Y D Q N A T S W H
TCAGATGAACCACTGGCAACACTGAATTTTGTGTTGTGCTAAGTTATCATCCAAACGTT
S D E P S G N T E F C V V L S Y H P N V
AAAGCATGGGGCTGGAGTGTGCGCCCTTGTGATGGTGATCATAGGTTGATTGTGAGATG
K G W G W S V A P C D G D H R L I C E M
AGGCAGCTCTATGTATGA
R Q L Y V

(57) Abstract: The present invention provides novel mammalian C-type lectin polypeptides associated with antigen presenting cells. Designated as Dendritic Cell C-type Lectins (DCL), the following four novel genes have been discovered: DCL 1, DCL 2, DCL 3 and DCL 4, as well as splice variants svDCL 2, svDCL 3 and svDCL 4, and a human homologue herein designated DCL 5. The present invention provides polynucleotides encoding DCL polypeptides, recombinant expression vectors, host cells transfected with the recombinant expression vectors, methods of producing and isolating the inventive polypeptides and various screening assays. Therapeutic compositions and methods of treating various diseases are also provided.

MALPNIYTDVNFKNQPVSSGLISDSSSCTVSDSSSALPKKTTIHKSNPGFPRLLLALWIF
FLLAILFSVALIILFQMYSDLEEKYTLERLNHARLHCVKNESSVEDKVVSSCPKNWKP
FDSHCYFTSRDTASWSKSEKCSLRGAHLVLIQSQEEDQDF
HGQWQWVDQTPYDONATSWHSDPSGNTFCVVLSEHNVKMGWSVAPCDGDRLICEM
RQLYV

WO 03/031578 A2

PUB-NO: WO003031578A2
DOCUMENT-IDENTIFIER: WO 3031578 A2
TITLE: MAMMALIAN C-TYPE LECTINS
PUBN-DATE: April 17, 2003

INVENTOR-INFORMATION:

NAME	COUNTRY
BUTZ, ERIC A	US
ANDERSON, DIRK M	US

INT-CL (IPC): C12N00/

ABSTRACT:

CHG DATE=20030603 STATUS=N>The present invention provides novel mammalian C-type lectin polypeptides associated with antigen presenting cells. Designated as Dendritic Cell C-type Lectins (DCL), the following four novel genes have been discovered: DCL 1, DCL 2, DCL 3 and DCL 4, as well as splice variants svDCL 2, svDCL 3 and svDCL 4, and a human homologue herein designated DCL 5. The present invention provides polynucleotides encoding DCL polypeptides, recombinant expression vectors, host cells transfected with the recombinant expression vectors, methods of producing and isolating the inventive polypeptides and various screening assays. Therapeutic compositions and methods of treating various diseases are also provided.

PUB-NO: WO003000850A2
DOCUMENT-IDENTIFIER: WO 3000850 A2
TITLE: DENDRITIC CELL TRANSMEMBRANE SERINE PROTEASE
PUBN-DATE: January 3, 2003

INVENTOR-INFORMATION:

NAME	COUNTRY
ANDERSON, DIRK M	US
VIRCA, G DUKE	US

INT-CL (IPC): C12N00/

EUR-CL (EPC): C12N009/64

ABSTRACT:

CHG DATE=20030305 STATUS=N>Isolated Dendritic Cell Transmembrane Serine
Proteases, DNAs encoding such serine proteases, and pharmaceutical and/or
diagnostic compositions made therefrom, are disclosed. The isolated
serine
proteases can be used to hydrolyze peptide bonds. The serine proteases
are
also useful in screening for inhibitors or agonists thereof.